FIG 1

WORKSTATION

PORTAL DOMAIN
ANALYSIS

TRIFLES
MS ACCESS

OLE LINK

DOCUMENT MANAGEMENT
OLE SERVER

MS WORD

BITMAP
EDITOR

VIDEO
EDITOR

DOCUMENT

WORD
FILES

BITMAP
IMAGES

MOV(IE)
FILES

SCAN

MINITECH
LAB

SCAN/OCR

CAPTURE

FIG 2

DOMAIN ANALYSIS

FIG 3

CONCEPTUAL ASSESSMENT FRAMEWORK

FIG 4

DOCUMENT MANAGEMENT FORM

FIG 5

TRIFLE MANAGEMENT FORM

FIG 6

New Presentation Paradigm

Name:

Presentation Paradigm 2

Description:

| Tasks | Properties | Pedigree | Hierarchies | Notes |

Presentation Note:

Add   Remove   Open

OK   Save   Cancel   Help

PRESENTATION PARADIGM

FIG 7

PROTO RULES

FIG 8

PROFICIENCY PARADIGM

FIG 9A

Edit Proficiency Paradigm   ▬ ▢ ✕

Name:

Proficiencies related to Learning Claims

Purpose of Assessment:

To support learning directly in the domain of high school biology, specifically the following topics: transmission genetics and mechanisms of evolution.

Description:

This represents a set of proficiencies (derived from the standards-based domain representation) that would support claims for the prototype assessment when it rit is used to support learning directly. This paradigm could be re-used to support alternate sets of claims.

| Graph | Properties | Aspects | Scope | Pedigree | Hierarchies | Notes |

Evidence Paradigms

- Agouti Segment 1 - Formalize Ho (Evid.
- Agouti Segment 10 - Cross Expertise (E
- Agouti Segment 11 - Punnett Sq (Evid.
- Agouti Segment 12 - Chi Sq (Evidence)
- Agouti Segment 13 - Ho Confirm/Disco
- Agouti Segment 14 - Ho Confirm/Disco
- Agouti Segment 15 - Ho Confirm/Disco
- Agouti Segment 16 - Write Report (Evi.
- Agouti Segment 17 - Sexual Life Cycle
- Agouti Segment 2 - Verify Method (Evi.
- Agouti Segment 3 - Phenotypic Proport
- Agouti Segment 4 - Impasse (Evidence

Worksheets

Open...   Add   Remove   Open

OK   Save   Cancel   Help

PROFICIENCY PARADIGM

FIG 9B

Edit Aspect Of Proficiency

Name: DK Mendelian Model (AP)

Description:

This potential student model variable represents factual (declarative and procedural) knowledge of the
Mendelian Model (absent its integration w/inquiry or unfying concepts).
Used in Reporting in assessment to support learning.

| Properties | Pedigree | **Hierarchies** | Notes |

I Belong To:

DK Transmission Genetics (AP)

Belongs To Me:

[Add...] [Remove] [Open...]   [Add...] [Remove] [Open...]

[OK]   [Save]   [Cancel]   [Help]

AN EXAMPLE OF AN ASPECT OF PROFICIENCY

FIG 9C

Edit Descriptor Of Performance Outcomes And Behavior

Name: Data Organization - Scoring Obs

Description:
This describes possible outcomes for organizing data so that it can be interpreted.

Properties | Pedigree | Hierarchies | Notes

Possible Values:
Add
Effective data organization
Somewhat effective data organization
Ineffective data organization

Roles:
☑ Observable
☐ Consolidation

Keywords:
Add ... | Remove

OK | Save | Cancel | Help

Edit Descriptor Of Performance Outcomes And Behavior

Name: Data/Model Relationships - Scoring Obs

Description:
This describes possible outcomes in relating patterns of data to particular models

Properties | Pedigree | Hierarchies | Notes

Possible Values:
Add
Data and model(s) related appropriately
Data and model(s) related somewhat appropriately
Data and model(s) not related

Roles:
☑ Observable
☐ Consolidation

Keywords:
Add ... | Remove

OK | Save | Cancel | Help

EXAMPLES OF DESCRIPTORS OF PERFORMANCE OUTCOMES / BEHAVIORS

FIG 10

Edit Proto Rule

Name: Agouti Segment 1 Interpretation Rul

AP/Claim

● DK Mendelian Model (AP)

Add   Remove   Open

Relationship:

Parents DKM and CONTEXT
are modeled as compensatory
over each of the 4 instances of
MMRep and 3 instances of
MMGen .

Difficulty:
All observables are expected to
be of typical difficulty, except
the first Mendelian Model
Representation one--it is
expected to be easier than
typical.

KR

Add   Remove   Open

○ Parsing
○ Evaluation
◉ Interpretation

DPS

Add   Remove   Open

DPO

▼ Mendelian Model Gener...
▼ Mendelian Model Repre...

Add   Remove   Open

Related Proto Rules

☐ Parsing

☐ Evaluation

☐ Interpretation

Add   Remove   Open

OK

Apply

Cancel

AN EXAMPLE INTERPRETATION PROTO RULE

FIG 11

EXAMPLE ROLES OF DESCRIPTORS OF PERFORMANCE SITUATIONS IN A TASK PARADIGM

FIG 12

PORTAL ASSESSMENT DESIGN
SYSTEM FOR EDUCATIONAL TESTING
Linda S. STEINBERG et al.
Docket No. 246400.0159
15 / 25

Edit Task Skeleton

Name:

Agouti Segment 1 - Formalize Ho [Task]TS1

Paradigm Name:

Agouti Segment 1 - Formalize Ho [Task]

Description:

This paradigm describes task segment 1 of the agouti mouse scenario. This segment is focused on knowledge related to the Mendelian Model and its representation, as well as investigative technique.

Stimulus | Response | Scope | Properties | Pedigree | Notes

KR

Add ...
Remove
Open ...

MOI Standard Text Form
MOI Symbol Tool Box
Population Attribute Table
Population Summary Cr...
Text Prompt(s)

Stimulus Notes

The primary stimulus material for this task is the Population Summary Cross Table. In this version it contains Jose's original crosses and results.

Prompts are used for Disciplinary and Investigative knowledge

DPS

Open ...

Show Category: All

View As:
● Tree
○ List

Domain Topic Requirement * Transmission genetics
Knowledge Level * Working
Number of Genes Determining Characteristic of Interest * one
Organism * real mammal
Prototype Domain * biology
Transmission Genetics * mode of inheritance

Roles of Selected DPS:

OK | Save | Cancel | Help

FIG 13

New Student Model Variable

Variable Name: Student Model Variable 70

Description:

States | Properties | Pedigree | Notes

State Details

State Name:

State Description:

Add

Remove

Sort

☐ True State

☐ Ordered States

OK | Save | Cancel | Help

STUDENT MODEL VARIABLE

FIG 14

EVIDENCE MODEL VARIABLE

FIG 15

FIG 16

FIG 17

FIG 18

TASK / EVIDENCE
COMPOSITE LIBRARY

WEIGHT OF
EVIDENCE
PARAMETERS

EVIDENCE
RULE
DATA

PRESENTATION
MATERIALS &
ENVIRONMENTAL
PARAMETERS

TASK
DESCRIPTION
PROPERTIES
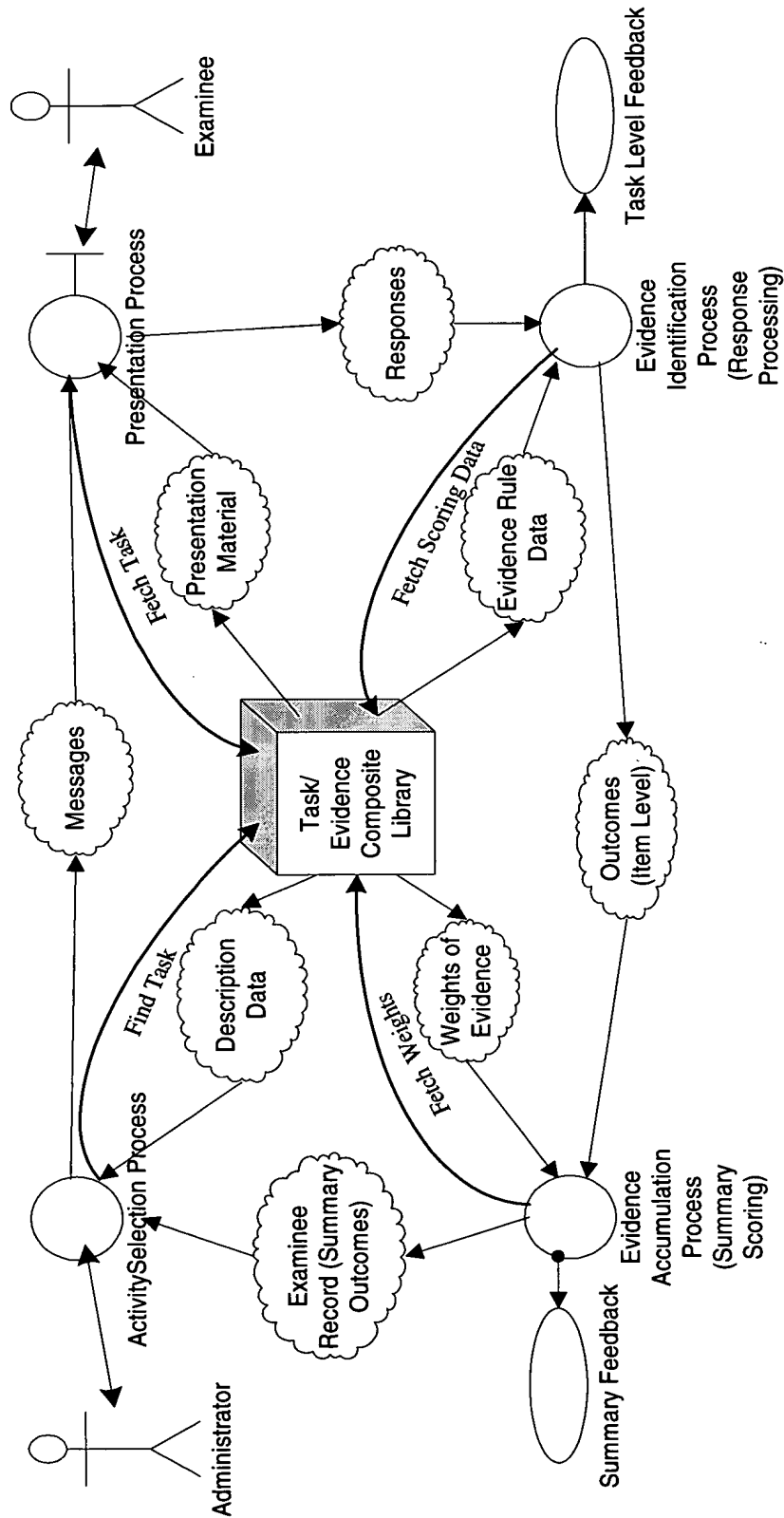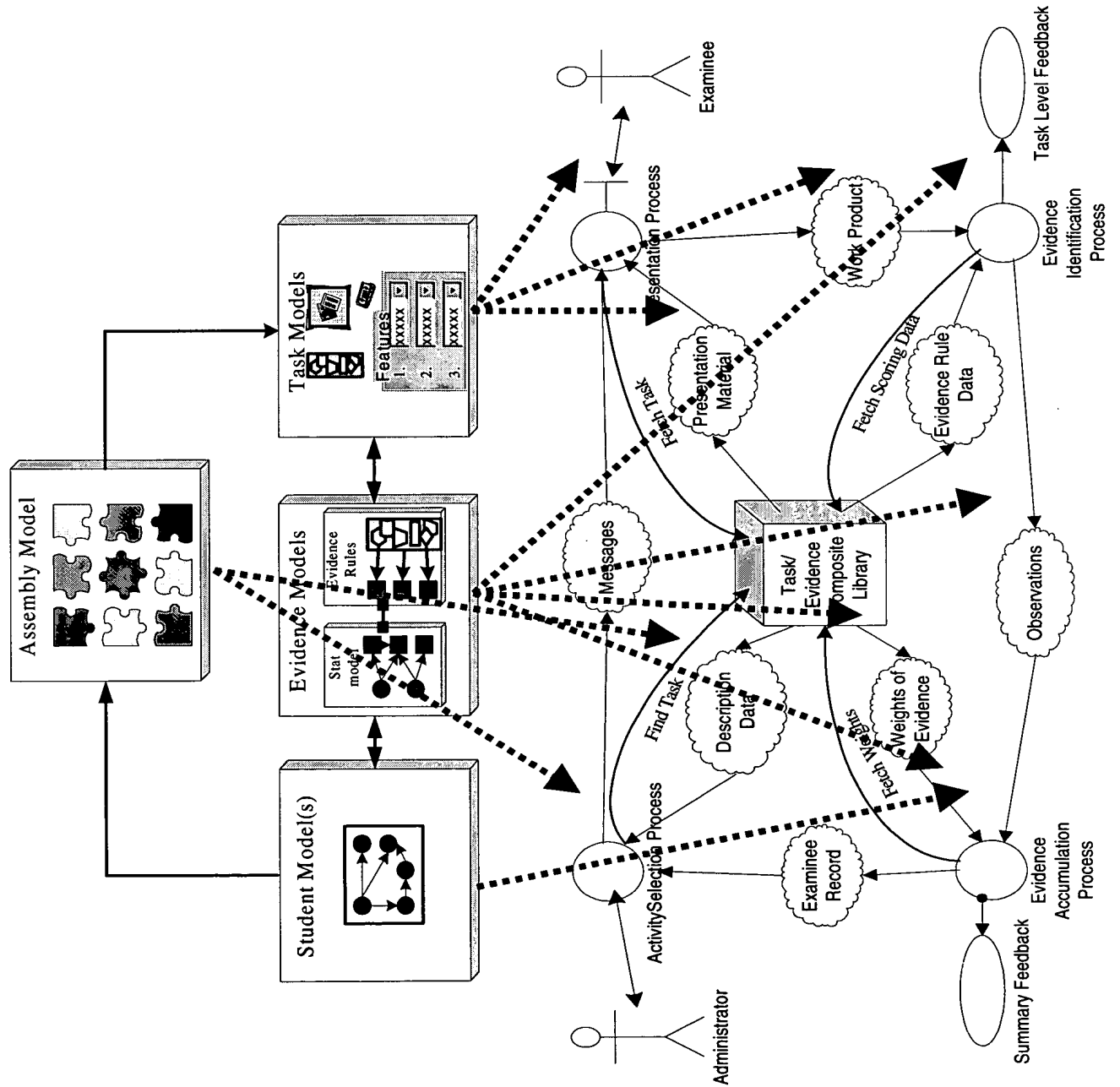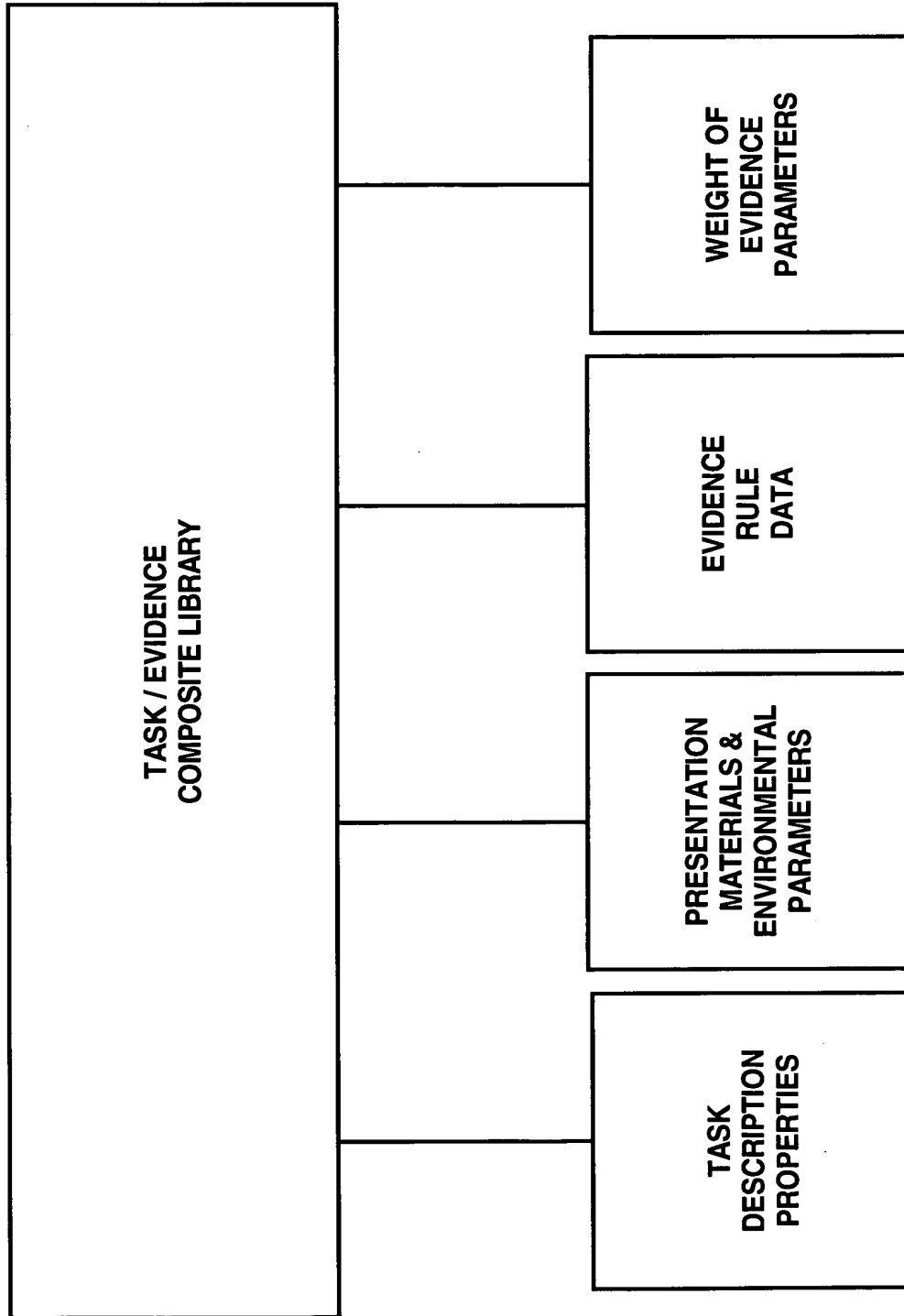
FIG 19

Student Model Variable

Variable Name: wKInqry

Description:

This potential student model variable represents the use of efficacious scientific methodology in formulating inquiries into transmission genetics and mechanisms of evolution.

Properties | Pedigree | Notes
States

State Details
State Name:
State Description:

High
Middle
Low

Add
Remove
Sort

True State

Ordered States

OK   Save   Cancel   Help

Edit Student Model Variable

Variable Name: DKMendel

Description:

This potential student model variable represents factual (declarative) knowledge of the Mendelian Model (absent its integration w/inquiry or unifying concepts). Reporting: Interim + task-based feedback.

Properties | Pedigree | Notes
States

State Details
State Name:
State Description:

High
Middle
Low

Add
Remove
Sort

True State

Ordered States

OK   Save   Cancel   Help

EXAMPLE STUDENT MODEL VARIABLES WITH STATES

FIG 20

Reporting Rule

Rule Name: Reporting for WK and Transmission Genetics

Rule Type: <unspecified>

Description:

| Specification | Pedigree | Notes |

Instructions (human or computer):

Claims
☆ WK Claim 9

Add... | Remove | Open...

Input Variables
- DK
- DKMendel
- DKTrnGen
- WKInqry
- WKModRev
- WKModUse

Add Var... | Remove | Open...

Output
Reporting Name:
Sample Statistic

Interpretation:
Score Ranges:
Probablilities at particular
levels of proficiency,
accompanied by **Score
Interpretation Guide.**

Diagrams

Add... | Remove | Open...

OK | Save | Cancel | Help

AN EXAMPLE REPORTING RULE

FIG 21

FIG 22

FIG 23